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Case 7116-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Art Unit 3679
Herbert Busse et al. :
Serial No.: 10/615,400 :
Filed: July 9, 2003 :
For: LOW-FRICTION SEAL :

BRIEF ON APPEAL

November 7, 2005

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TABLE OF CONTENTS

	Page
I. INTRODUCTION.....	1
II. STATEMENT OF REAL PARTY IN INTEREST.....	2
III. RELATED APPEALS AND INTERFERENCES.....	2
IV. STATUS OF CLAIMS.....	2
V. STATUS OF AMENDMENTS.....	3
VI. SUMMARY OF INVENTION.....	3
VII. ISSUES ON APPEAL.....	5
VIII. GROUPING OF CLAIMS.....	5
IX. ARGUMENT.....	5
Rejection under 35 U.S.C. §102	9
Rejection under 35 U.S.C. §103	11
X. CONCLUSION.....	13
XI. APPENDIX.....	14
Pending Claims	
Case Law cited in Brief.	



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BRIEF ON APPEAL

Honorable Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

I. INTRODUCTION

In response to the final Office action mailed July 14, 2005, a notice of appeal was filed on September 7, 2005. This brief is submitted in support of the appeal and as required under the rules.

A check in the amount of \$250.00 is attached in payment of the fee for filing a brief in support of an appeal.

It is believed no other fee is due; however, if that determination is not correct, debit the deficiency to Deposit Account No. 19-2105 and notify the undersigned.

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Appellant submits the decision of the examiner to finally reject claims 15-18, 20, 24 and 32 is erroneous and should be reversed.

II. STATEMENT REGARDING REAL PARTY IN INTEREST

The real party in interest is the assignee, Herbert Hanchen KG.

III. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that directly affect or are directly affected by or have a bearing on the Board's decision in this appeal.

IV. STATUS OF THE CLAIMS

The application at filing comprised claims 1-14. In a preliminary amendment, the original claims were cancelled and new claims 15-33 were added.

In response to a restriction requirement, claims 15-18, 20-24 and 32 were provisionally elected and claim 19, 25-31 and 33 were withdrawn.

In a first Office action, elected claims 15-18, 20, 24 and 32 were rejected and claims 21 and 22 were objected to. In a second Office action made final, elected claims 15-18, 20, 24 and 32 were rejected and claims 21 and 22 were objected to.

The claims on appeal are twice rejected claims 15, 16, 17, 18, 20, 24 and 32.

V. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the final Office action.

VI. SUMMARY OF THE INVENTION

The invention is a low friction seal assembly for high and low pressure applications. For example, the assembly may be used to provide a seal for a piston rod (figure 1).

The low friction seal assembly of claim 15 comprises a guide element 12 for guiding a shaft. The guide element 12 is provided with a groove 30 having a bottom wall 38 and a first side wall 34.

A sealing ring 44 is received within the groove 30, the sealing ring 44 has a cylindrical inner surface 46 adapted to be positioned adjacent a shaft surface to be sealed, as well as an end face 50 disposed adjacent the groove first side wall 34 and an outer cylindrical surface 48 disposed adjacent the groove bottom wall 38.

A seal 36, 37 is disposed between the sealing ring end face 50 and the first sidewall 34 of the groove 30 so that any pressure occurring between the groove bottom wall 38 and the sealing ring outer cylindrical surface 48 is maintained less than the pressure between the shaft to be sealed and the guide element 12 (substitute

specification page 4, lines 9-16; page 5, lines 1-10; page 15, lines 3-8; page 16, lines 3-9; page 17, lines 16-24; and page 18, lines 16-22).

The low friction seal of claim 32 comprises a guide element 12 for guiding a shaft. The guide element 12 is provided with a groove 30 having a bottom wall 38 and a first side wall 34. A sealing ring 44 is received within the groove 30, the sealing ring 44 has a cylindrical inner surface 46 adapted to be positioned adjacent a shaft surface to be sealed, as well as an end face 50 disposed adjacent the

groove first side wall 34 and an outer cylindrical surface 48 disposed adjacent the groove bottom wall 38. A seal 36, 37 is disposed between the sealing ring end face 50 and the first sidewall 34 of the groove 30 so that when the seal 36, 37 is subjected to a pressure medium, propagation of the pressure medium is caused to take place only between the cylindrical inner surface 46 of the sealing ring 44 and the shaft surface to be sealed with a substantially continuous decrease in pressure occurring along the length of the sealing ring 44 (substitute specification page 4, lines 9-16; page 5, lines 1-10; page 15, lines 3-8; page 16, lines 3-9; page 17, lines 16-24; and page 18, lines 16-22).

VII. ISSUES ON APPEAL

This appeal raises the following issues:

- (a) Whether the examiner erred in rejecting claims 15, 24 and 32 under 35 U.S.C. § 102(b) as anticipated by Richards (4,976,444).
- (b) Whether the examiner erred in rejecting claims 16-18 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Richards in view of Lindeboom (3,743,304).

VIII. GROUPING OF CLAIMS

The appealed claims do not stand or fall together. Arguments regarding why each claim is separately patentable are provided in the following section of this brief.

X. ARGUMENT

Applicable Law

The rejections are based upon 35 U.S.C. §§ 102(b), 103(a).

The Legal Standard of Anticipation

A claim is anticipated if every element in the claim is found in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as contained in the ... claims." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claims. There can be no differences between the

claimed invention and the disclosure as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Res. Found. v. Genentech Inc.*, 18 USPQ2d 1001 (Fed. Cir. 1991).

The Legal Standard of Obviousness

In rejecting claims under 35 U.S.C. § 103(a), it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In doing so, the examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988). These showings by the examiner are an essential part of complying with the burden of presenting *prima facie* obviousness. *In re Oetiker*, 24 USPQ2d 1433, 1434 (Fed. Cir. 1992).

The prior art combination of references must teach or suggest all the limitations of the claims. *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970)

The Anticipation Rejection

Claims 15, 24 and 32 have been rejected under 35 U.S.C. §102(b) as anticipated by Richards.

The examiner's position regarding claim 15 is that the following structure in Richards anticipates the claim. A guide element 12 for guiding a shaft 42, a groove holding ring seal 72 within the guide element 12, the groove having a bottom wall contacting 104 and a first side wall contacting seal 106, a sealing ring 72 within a groove, the sealing ring having cylindrical inner surface having grooves 96-98 adapted to be positioned adjacent a shaft to be sealed 42, an end face holding seal 106 disposed adjacent the groove first side wall and an outer cylindrical surface holding 104 disposed adjacent the groove bottom wall, a seal 106 disposed between the sealing ring end face and the groove side wall so that pressure is restricted from flowing across the end face of the seal ring by the seal 106.

The examiner's position regarding claim 24 is that the following structure in Richards anticipates the claim. All elements of claim 15 are shown in figure 5 of Richards as is a seal ring having a side wall 80 associated with a guide element groove, a drainage channel, the drainage channel extending through the seal ring and the guide element.

The examiner provides no reasons for why claim 32 is anticipated by Richards.

The Obviousness Rejection

Claims 16, 17, 18 and 20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Richards in view of Lindeboom.

The examiner's position is that all the structure recited in these claims is disclosed in Richards except for a seal comprised of a formed part and a plastic sealing ring. Lindeboom is said to disclose a seal ring having a side wall and a groove 54 that holds a seal formed by 66 and 68, the seal comprising a formed part 64 made of plastic or rubber and a plastic ring 66. It is stated that it would have been obvious to one of ordinary skill in the art to configure the seal of Richards to have a formed part and a plastic ring as in Lindeboom so as to provide seals under high pressure and temperature.

Appellant's Position

1. Richards does not disclose all the features of the claimed invention.
2. Richards in combination with Lindeboom does not disclose all the features of the claimed invention.
3. There is no prior art teaching or suggestion to combine Lindeboom with Richards.

REJECTION UNDER 35 U.S.C. § 102(b)

**A. THE EXAMINER ERRED IN REJECTING
CLAIMS 15, 24 AND 32 UNDER 35
U.S.C. 102 AS ANTICIPATED BY RICHARDS**

Grouping of the claims

Claims 15, 24 and 32 do not stand or fall together.

1. *Richards does not disclose all elements recited in the claims.*

Specific limitations in the rejected claims are not disclosed in Richards. First, a groove extending within a guide element for receiving a sealing ring as recited in each of claims 15, 24 and 32 is not disclosed. The annular sealing element 72 of Richards is encased within a four wall enclosure formed from cooperating notches provided in the elongated pump case 12 and impeller outer shroud 42, respectively.

A sealing ring cylindrical inner surface adapted to be positioned adjacent a shaft surface to be sealed as recited in each of claims 15, 24 and 32 is not disclosed. The inner axial surface 80 of sealing element 72 in Richards is not adjacent the shaft 38. The inner axial surface 80 in Richards is adjacent the outer shroud 42 of impeller 38. See figure 1.

The examiner appears to take the position that structure recited in the claims which acts upon a shaft (the guide element), is disposed or positioned relative to a shaft (the

cylindrical inner surface of the sealing ring) or is subjected to a pressure between it and the shaft (the guide element) is an intended use and not entitled to patentable weight. As an initial matter, it is noted that each of these elements is written in the form of a structural limitation within the body of the claim and not in the form of a preamble statement reciting purpose or intended use. Accordingly, a statement of intended use does not exist in the claims. See MPEP § 2111.02. Further, the disclosure in Richards is insufficient to show that shaft 38 may be sealed by element 72. All limitations in claims 15, 24 and 32 are entitled to patentable weight and Richards does not disclose all the limitations.

Richards also fails to disclose a seal disposed between a sealing ring end face and a groove first side wall so that any pressure occurring between the groove bottom wall and the sealing ring outer cylindrical surface is maintained less than the pressure between the shaft and the guide element as recited in claims 15 and 24. The fluid pressure occurring between shaft 38 and guide element 12 in Richards is *low* pressure whereas the fluid pressure in region 48 is *high* pressure. See Column 4, lines 15-16 and 24-25.

The rejection regarding claim 32 is incorrect for similar reasons; namely, Richards fails to disclose a seal disposed between a sealing ring end face and a groove first side wall so that when

the seal is subjected to a pressure medium, propagation of the pressure medium is caused to take place only between said cylindrical inner surface of the sealing ring and the shaft surface to be sealed with a substantially continuous decrease in pressure occurring along the length of the sealing ring.

EXAMINER'S REJECTION UNDER 35 U.S.C. § 103

**B. THE EXAMINER ERRED IN REJECTING
CLAIMS 16-18 and 20 UNDER 35
U.S.C. 103 AS OBVIOUS OVER
RICHARDS IN VIEW OF LINDEBOOM**

Grouping of the claims

Claims 16-18 and 20 do not stand or fall together.

**1. Richards in combination with Lindeboom does not disclose all
the features in the claims.**

Claims 16-18 and 20 depend from independent claim 15. As discussed in the preceding section with respect to claim 15, Richards fails to disclose (1) a groove extending within a guide element for receiving a sealing ring, (2) a sealing ring cylindrical inner surface adapted to be positioned adjacent a shaft surface to be sealed and (3) a seal disposed between a sealing ring end face and a groove first side wall so that any pressure occurring between the groove bottom wall and the sealing ring outer cylindrical surface is maintained less than the pressure between

the shaft and the guide element. These limitations are also not found in Lindeboom. Accordingly, the rejection of claims 16-18 and 20 under 35 U.S.C. § 103(a) is improper.

2. *There is no prior art suggestion for combining Lindeboom with Richards.*

As discussed in the foregoing section, the sealing element in Richards provides a seal against an outer shroud of an impeller blade and nothing in the disclosure suggests the seal is inherently adapted to also provide a seal against the shaft. Lindeboom discloses a floating seal for sealing a shaft 12. In embodiments where the seal (flange) is provided with internal pressure communicating passageways (figures 4, 6 and 7) the high pressure side of the seal is provided with a coaxial groove within which are disposed a resilient O-ring and a pressure dam ring axially slidably superimposed on the O-ring for establishing pressure dams against leakage around the flange.

It is stated in the final rejection (final rejection, pages 3-4) that one of ordinary skill would be motivated to provide the O-ring and pressure dam ring of Lindeboom in Richards to provide seals under high pressure and temperature. However, the Richards seal is already adapted for high pressure applications. See Column 4, lines 24, 41. Further, the seal materials disclosed in Richards are specifically adapted for extremely high temperatures

in excess of five hundred degrees Fahrenheit. See Column 6, line 45. The proposed modifications to Richards set forth in the rejection are moot and certainly not suggested by the prior art. Also, the O-ring and pressure dam ring of Lindeboom is not provided to adapt the seal for high and low temperature applications as stated in the final Office action. See Column 3, lines 20-24. The motivation for the combination is not based upon a prior art suggestion but rather, appellant's own specification. The rejection of claims 16-18 and 20 is therefore improper.

X. CONCLUSION

For the foregoing reasons, appellant submits the examiner erred in rejecting claims 15, 16, 17, 18, 20, 24 and 32. Appellant respectfully requests the rejection of these claims be reversed.

Respectfully Submitted,

Date: NOVEMBER 7, 2005



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XI. APPENDIX

15. A low friction seal assembly comprising:

a) a guide element for guiding a shaft, said guide element having a groove extending therein, said groove having a bottom wall and a first side wall;

b) a sealing ring, said sealing ring received within said groove, said sealing ring having a cylindrical inner surface adapted to be positioned adjacent a shaft surface to be sealed, an end face disposed adjacent said groove first side wall and an outer cylindrical surface disposed adjacent said groove bottom wall; and

c) a seal, said seal disposed between said sealing ring end face and said groove first side wall so that any pressure occurring between said groove bottom wall and said sealing ring outer cylindrical surface is maintained less than the pressure between the shaft and said guide element.

16. A low friction seal assembly as in claim 15 and wherein said seal includes an annular sealing element in the form of a plastic sealing ring coaxially aligned with said sealing ring and having a width less than that of said sealing ring and a thickness greater than the distance extending between said groove first side wall and said sealing ring end face.

17. A low friction seal assembly as in claim 16 and wherein said seal further includes a formed part, said formed part is operatively associated with said plastic sealing ring so that when said seal is charged with a pressure medium, said formed part will press said plastic sealing ring against said groove first side wall.

18. A low friction seal assembly as in claim 17 and further including:

a) an annular groove, said annular groove extends into said sealing ring end face and is configured to receive said formed part so that when said seal is charged with a pressure medium said formed part is deformed in such a manner that the force of said plastic sealing ring pressing against said groove first side wall is caused to be increased.

20. A low friction seal assembly as in claim 17 and wherein said formed part is a ring, said ring is at least one of flexible and elastic and is constructed from at least one of plastic and rubber material.

24. A low friction seal assembly as in claim 15 and further including:

- a) a second side wall, said second side wall associated with said guide element groove; and
- b) a drainage channel, said drainage channel operatively associated with said second side wall and extending outwardly through said guide element from said second side wall.

32. A low friction seal assembly comprising:

- a) a guide element for guiding a shaft, said guide element having a groove extending therein, said groove having a bottom wall and a first side wall;
- b) a sealing ring, said sealing ring received within said groove, said sealing ring having a cylindrical inner surface adapted to be positioned adjacent a shaft surface to be sealed, an end face disposed adjacent said groove first side wall and an outer cylindrical surface disposed adjacent said groove bottom wall; and
- c) a seal, said seal disposed between said sealing ring end face and said groove first side wall so that when said seal is subjected to a pressure medium, propagation of the pressure medium is caused to take place only between said cylindrical inner surface of said sealing ring and the shaft surface to be

sealed with a substantially continuous decrease in pressure occurring along the length of said sealing ring.

CASE LAW

	Page
<u>In re Fine</u> , 5 USPQ2d 1596 (Fed. Cir 1988)	6
<u>Graham v. John Deere Co.</u> , 148 USPQ 459 (S. Ct. 1966)	6
<u>In re Oetiker</u> , 24 USPQ2d 1433 (Fed. Cir. 1992)	6
<u>Richardson v. Suzuki Motor Co.</u> , 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)	5
<u>Scripps Clinic & Res. Found. v. Genentech Inc.</u> , 18 USPQ2d 1001 (Fed. Cir. 1991)	6
<u>Uniroyal, Inc. v. Rudkin-Wiley Corp.</u> , 5 USPQ2d 1434 (Fed. Cir. 1988)	6
<u>Verdegaal Bros. v. Union Oil Co. of California</u> , 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)	5
<u>In re Wilson</u> , 165 USPQ 494 (CCPA 1970)	6